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INFORMATION REPORT

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SUBJECT Chemical Combine No 100 in Aleksin

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SUPPLEMENT TO REPORT NO.

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THIS IS UNEVALUATED INFORMATION

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1. Chemical Combine No 100 in Aleksin was located in the eastern section of the city of Aleksin, Tula Oblast (54°31'N/37°05'E), about 2 km from the railroad station and about 600 m north of the left-hand bank of the Oka River. The single-track railroad line linking Kaluga (54°30'N/36°18'E) and Aleksin and Tula (54°12'N/37°36'E) ran along the south side of the combine. The plant had a railroad system with several spur tracks converging at the plant-owned railroad station No 73. The main approach road from the town of Aleksin entered the plant on the northeast. *

2. The combine was put into operation in 1938. The buildings of this combine sustained only slight war damage, but its most important installations and machinery were transferred to eastern U.S.S.R. The reconstruction of the plant began in 1943 and the premises were considerably expanded during the following years. In 1947 and 1948 all installations of the plant were re-equipped with new machinery from Germany. Many of the new buildings were not finished as of early 1949. Most of the new buildings were erected in the northern section of the combine and were constructed to increase the productive capacity. The power plant was also considerably enlarged. A new nitric acid production plant and a new nitroglycerine section were added to the combine.

3. The combine covered an area of about 2.5 by 1.5 km. Its production plants included a sulphuric acid tower installation with pyrite roasting equipment, an installation for the production of nitric acid, an installation for mixing this acid to produce a mixture of nitrous and nitric acid, a large installation for the production of ethyl alcohol, and equipment for the electrolytic production of chloride of alkali. There were also installations for the production of nitrocellulose, nitroglycerine, picric acid, and other nitrated explosives made from phenol ($C_6H_5.OH$), kresol ($CH_3.C_6H_4.OH$), benzol (C_6H_6), toluol ($C_6H_5.CH_3$), etc., used in the manufacture of explosives. Large buildings housed manufacturing sections which produced various mixed explosives and artillery and rifle ammunition, as well as ammunition loading installations. Part of the finished explosives were stored in sheds in the northern plant area in densely wooded terrain. Other explosives, together with finished ammunition, were stored in bunkers in the western section of the plant which were protected by embankments. West of these bunkers was a testing range equipped with several guns. The combine

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also had a plant for the utilization of gun and collodion cotton waste, which produced celluloid articles; plant for the production of rubber protective clothing; administration and office buildings; warehouses; workshops and a number of auxiliary installations. The plant had its own large power plant called **Teplo-Elektro Tsentral (TETs)**, meaning a steam-driven power station, which supplied electric power steam for heating. The boiler ashes from the power station were processed into building materials in a factory south of the railroad line. A large pump station supplied the plant with water. Waste water was purified in a special plant prior to being carried off into the Oka River. **

4. In early 1940, the Chemical Combine in Aleksin produced sulphuric acid (H_2SO_4), nitric acid (HNO_3), ethyl alcohol ($C_2H_5.OH$), nitrocellulose in the form of gun cotton containing about 13 percent nitrogen and collodion cotton with about 11.3 percent nitrogen, nitroglycerine ($(C_2N.O.CH_2)_2H.O.NO_2$), picric acid ($C_6H_2.OH.(NO_2)_3$), nitrobenzol ($C_6H_5.NO_2$), nitrotoluol ($C_6H_4(CH_3).NO_2$), and similar explosives. Mixed explosives made from basic explosives were used to produce gun powder and were also used in aircraft bombs, mines, and torpedoes. Several sources stated that in some buildings, chemical warfare agents, including lewisite and mustard gas, were produced and placed in ammunition. Combs, cans, and other items were made from celluloid and rubber protective clothing and building materials for the plant's own requirements were manufactured from waste and byproducts.

5. There were no raw materials in the vicinity of this combine. Most of the coal came from pits near Tula. The most important suppliers were the Shchekin-Ugol Firm in Shchekino (54°01'N/37°31'E) and the Bobrikdonskoi (54°0[illegible]'N/38°15'E) pits. Some of the cellulose for the production of nitrocellulose came from the cotton fields in Central Asia, in the form of cotton fibers. However, most of the cellulose came from cellulose plants Kondrovo and Polotnyanny Zavod (54°45'N/36°30'E) north of Kaluga, in the form of lignocellulose. Glycerine was supplied by the large soap and bone processing factory in Kaluga (54°30'N/36°18'E) and from other plants. Pyrites from the Ural were used as basic pyrites to obtain sulphuric acid. All other raw materials, such as soda, kitchen salt, phosphorus, and solvents, including methyl alcohol (CH_3OH), as well as the empty shells, cartridge cases, and fuses, had to be supplied from other plants.

6. Three 8-hour shifts were worked. There were about 2,000 employees, of whom half were women, in each shift. There were some Soviet convicts and forced laborers. Four German specialists, who had been transferred from German firms,
25X1 worked in the plant [redacted]

7. The entire area of the combine was surrounded by a fence, 3 meters high, with barbed wire. Certain factories were individually fenced in with barbed wire, and some of them had a large number of lightning rods. There were wooden watchtowers, about 10 m high, at various points in the plant area. Smoking was strictly forbidden. The plant was guarded by about 15 MVD sentries who were
25X1 blue and white epaulets [redacted] Gate checking and patrol duty was performed by civilian factory police who used watchdogs during the night. All factory police had rifles, submachine guns, or pistols and there were machine guns on the watchtowers. A number of 20-mm twin AA guns and some heavier AA guns were emplaced in and around the combine. Near the main administration building was a station of the Aleksin public fire brigade. This fire brigade had two obsolete fire engines and a number of foam fire extinguishers. There were fire extinguishers and sand boxes at numerous points in the plant. The permits of all persons entering the combine were very carefully checked. Certain sections were accessible only to holders of passports with photographs. These sections were under special control by the MVD. ***

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25X1 * [redacted] Comment. For location sketch of the combine, see Annex 1.

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25X1 ** [redacted] Comment. For layout sketch of the combine, see Annex 2.

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25X1 *** [redacted] Comment. According to available information, part of the Chemical Combine No 100 in Aleksin was put into operation in 1938, and was to be expanded into a large-scale explosives plant. The installations which were in operation in 1941 included 1 sulphuric acid tower plant; 1 mixing installation for nitrating acid; 1 nitrocellulose plant; 1 nitroglycerine installation; 1 plant for nitrating benzol, phenol, toluol, etc.; 1 plant for the production of mixed explosives, including the production of explosives charges and propellants for gun projectiles, small-arms ammunition, and initiators (Initialzuendern); 1 shop loading cartridge cases, explosive charges, and tracer ammunition. Shells were also filled with lewisite, mustard gas, and an unidentified hydrocyanic chemical warfare agent in the latter shop. Neither the present capacity of the plant nor the former were known. The power plant of the combine which in 1941 was equipped with two steam boilers and two turbines, had an installed capacity of 50,000 kw. In 1941, the combine employed 15,000 workers, including construction workers.

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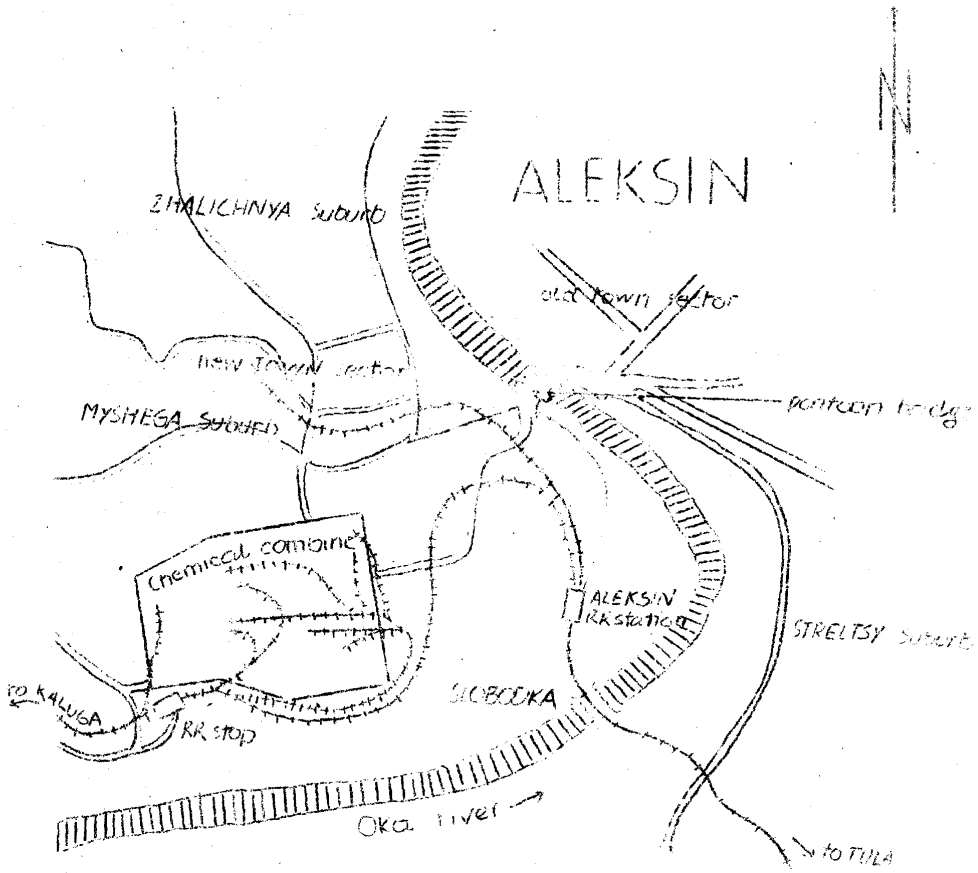
Attachment 1

Layout sketch of
Chemical Combine No 100 in Aleksin



scale about 1" 500 m

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Legend:

1. through 21. **TETs**, the electrical power plant and long-distance heating plant of the combine, which was erected in 1938. Part of the machinery and other equipment was transferred to the eastern U.S.S.R. at the beginning of World War II. 11 installations, erected after 1941, were of American or German origin. **The TETs** supplied the combine and also furnished power and some **steam for heating** to the town district of Elektrostal and neighboring industries. It cooperated closely with the power plants in Kashira, Moscow Oblast (54°50'N/38°12'E), and Stalinogorsk, Moscow Oblast (54°04'N/38°15'E).

1. Boiler house, equipped with four coal-dust and oil-fired steam boilers.

1a. Coal hoist.

2. Two brick smokestacks, one old and one new.

3. An open coal dump with standard-gauge spur track and a concrete wall capable of storing up to 2,000 tons of coal. The coal was low-grade brown coal containing considerable quantities of waste material.

4. Coal dressing and crushing plant. Before being crushed the coal was cleaned by hand.

5. Conveying equipment for coal dust to be conveyed to the boiler house, consisting of a conveyor belt and a bucket elevator at the boiler house.

6. Water pump station.

7. Water purifying and cooling installation and a concrete reservoir with a built-in spiral pipe system.

8. New buildings which were not yet equipped as of the end of 1948.

9. Steam boiler house and purifying plant for condensed water, and water-softening apparatus using a lime-and-soda process.

10. Turbine house with 2 old turbines which were in operation in 1946 and 3 new turbines added in 1948. Preliminary work for the installation of several new turbines started at the end of 1948.

11. Buildings housing several large storage batteries.

12. Electrical repair shop.

13. Switch house.

The boiler house, turbine house, storage battery buildings, and switch house were connected by covered catwalks.

14. Forge and mechanical workshop.

15. Transformer installations, some enclosed and some in the open.

16. Two tanks for transformer oil, each about 20 meters high and 3 meters in diameter.

17. High brick smokestack.

18. A cooling tower erected in 1948 from components of a tower dismantled in Saxony.

19. Long-distance heating pipes.

19a. Long-distance heating pipe to the town of Aleksin.

20. High-voltage line to Aleksin and Kashira (54°50'N/38°12'E).

21. High voltage line to Stalinogorsk (54°04'N/38°15'E).

22. Pyrite dump and pyrite roasting plant.

23. Sulphuric acid tower plant with two groups of 4 towers each. There was a roof over each group of towers and the towers were coated with metal.

24. Sulphuric acid pipes leading to the mixing plant.

25. Department for the preparation of nitric and nitrous acid. Mixing of sulphuric and nitric acid.

26. New nitric acid plant with several buildings, one equipped with tower-like reaction containers (Reaktionsbehaelter).

27. Nitric acid pipe leading to the mixing plant.

28. Plant repair shop.

29. Pipes carrying nitric and nitrous acid to storage tanks and war out plants of the combine.

30. Storage place for mixed acids.

31. Two material warehouses.

32. Material warehouse with unloading platform.

33. Main buildings and annexes for the production and storage of alcohol. These buildings formed a separately fenced and guarded section. Only two of these buildings were in use from 1945 to mid-1948. One was equipped with machinery and the other contained 4 tanks. Several other tanks had been recently completed. High-percentage ethyl alcohol was produced.

34. Several buildings storing various solvents, including methyl alcohol

35. Pipes carrying ethyl, methyl alcohol and other solvents to the production departments.

36. Production and storage of nitrocellulose and gun cotton. One of these buildings was banked with a high earth wall.

37. Two repair shops.

38. Several buildings used to produce celluloid products from nitrocellulose waste.

39. Several buildings for the production of chlorine and for chloride alkali electrolysis.

40. through 47. Nitroglycerine Plant No 472, built in 1946 and 1947, and put into operation in late 1947. This plant consisted of several buildings located in a separately fenced-in and closely guarded area.

40. Office building and shop.

41. Concrete tank used to store glycerine.

42. Three separate tanks on concrete foundations, each 3 meters in diameter. The two outside tanks were 30 meters high and the middle one was about 20 meters high.

43. Cooling plant with built-in spiral pipe system and several centrifugal pumps.

44. Transformer house.

45. A building with a small room in the western section, and with 2 large bays. The northern bay housed 3 low containers, 1.5 meters in diameter, and the southern bay housed 2 reaction containers, each 6 meters high and 3 meters in diameter. A steam heating pipe from the power plant extended into this room, which had numerous pipes. All containers had thick lead linings.

46. A building with 2 horizontal boilers, each 8 meters long and 2 meters in diameter, and an open loading platform on the west side.

47. Two pipes, each 500 mm in diameter, and 2.5 meters underground, connecting plants Nos 472 and 473.

48. through 57. Plant No 473, which produced and stored explosives.

48. A nitro-glycerine plant built in 1917 and 1918. Two high vertical containers projected from the main building. Nearby was a small three-story building with an office and several manufacturing rooms.

49. A red brick warehouse with small windows near the ceiling and a wooden loading platform on the southwest side, along the large-gauge track, where 6 railroad cars could be loaded and unloaded at the same time. Colored packing paper was stored in a partitioned room in the northeastern section of the building.

50. A flat-roofed brick factory building with four rooms on either end, each housing a centrifugal pump coupled to a sparkproof electrical motor. The central section of the building housed 12 cylindrical containers each about 5 meters high and 5 meters in diameter, and was connected with the other buildings of the plant by pipelines. In 1918, when a subterranean pipe was damaged, workers had to put on gasmasks while making repairs. A nitric acid pipe led into the building.

51. Building housing the plant offices in one room. Sources did not know what the rest of the plant was used for.

52. Two 6 x 6 x 4 meters transformer huts with double doors.

53. Kitchen and mess room.

54. Two bunkers completely covered with earth and projecting about 1 meters above the ground and doors on the northwest side surrounded by separate fences.

55. Garage and warehouse.

56. Brick factory building with a boiler of about 10 cubic meters on its ground floor. Pipes extended to the upper stories of the building. Valves and measuring instruments were installed near the boiler. Obsolete machinery and pipes were removed from the upper story and scrapped in mid-1918. [illegible] of the pipes had [illegible] of asbestos which caused painful burns when touched. This building was connected with the building identified as Item 50 by a very strong, thickly [illegible] pipe line on poles, [illegible] meters high.

57. A small building used to store liquid explosives, and several storage tanks about 10 meters in diameter. These tanks were sunk into the ground, and projected about 1 meter above the surface. They were surrounded by wooden fences and had wooden lids and lightening conductors on top. This section was surrounded by an extra-strong barbed-wire fence and was closely guarded.

58. An old brick water tower, about 25 meters high, with a circular walk around the upper section.

59. Department for the production of nitro-gelatine.

60. Department for the production of mixed explosives, with mixing equipment and devices for loading ammunition. Thousands of 500 x 500 x 500-mm containers built in wooden racks, most of them of American origin, lay in the adjoining area. They were made of sheet zinc. Some contained powder of different kinds.

61. Storage shed for the explosives mixing and loading section.

62. Sawmill for the manufacture of packing material.

63. Building used in the production and repair of rubber footwear, rubber clothing, and rubber sleeves for the combine's own requirements.

64. Explosives and ammunition dumps, consisting of several underground bunkers with earth walls.

65. Firing range for testing explosives, called the Polygon, where several old guns were emplaced, including one 35-mm AT gun, one 172-mm howitzer, one 700-mm or 800-mm(sic) long-barreled gun, and one 120-mm long-barreled gun.

66. Dump yard for dismantled German industrial material.

67. Kennel for watchdogs, surrounded by barbed wire and shrubbery.

68. Large-diameter pipe leading from the pump station on the Oka River.

69. Water pump station.

70. Ravines.

71. A ravine through which a waste water pipeline extended from the power station to the Oka River.

72. Waste water purifying plant, using chemicals.

73. Department for the utilization of ashes and production of building material consisting of factory buildings, storage sheds, and dwellings.

74. Workers' settlement, called Slobodka.

75. Barracks installations housing military and civilian guards.

76. Billets, on the shed of the fire brigade, and a tower.

77. Administration building of the combine.

78. Large garage.

79. Plant fence.

80. Guard houses at main entrances.

81. Office building, which, in 1961, housed the office of the [redacted] building firm, responsible for all new construction in the plant.

Note: [redacted] crystal gazers could not be identified.

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